

What kinds of insects are borers?

- Moths
 - Shoot tip moths (several families)
 - Clear wing moths
 - Others, pyralid moths, carpenter worms
- Beetles
 - Metallic wood boring beetles (Flat headed borers)
 - Long horned beetles
 - Bark beetles
 - Ambrosia beetles
 - Sap beetles
 - Weevils
- Wasps
 - Horn tails
 - Sawflies

Adult European Pine Shoot Moth



European Pine Shoot Moth Damage



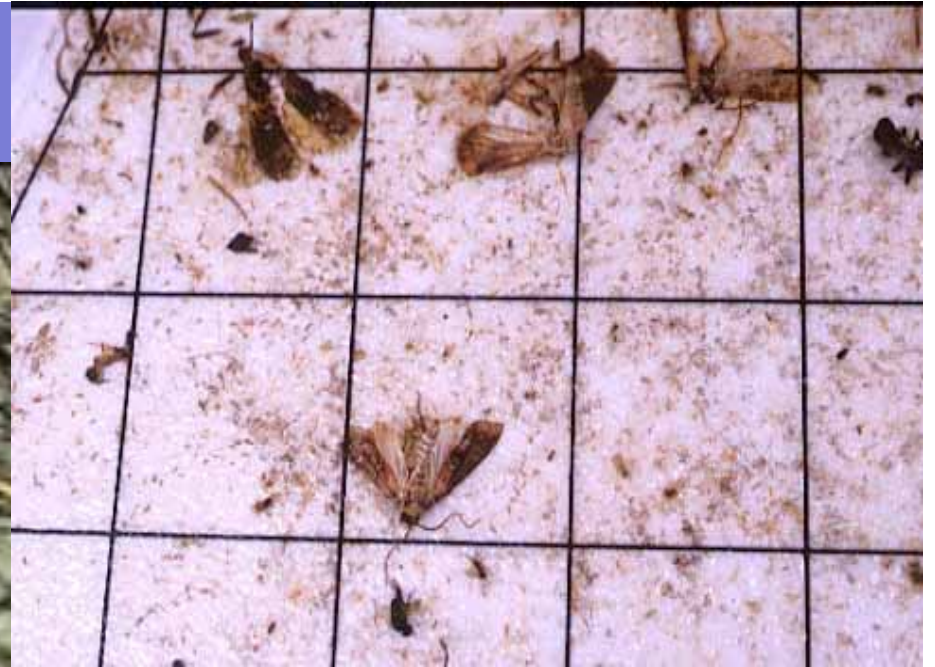
European Pine Shoot Moth



Zimmerman Pine Moth Damage



Zimmerman Pine Moth



Habitus

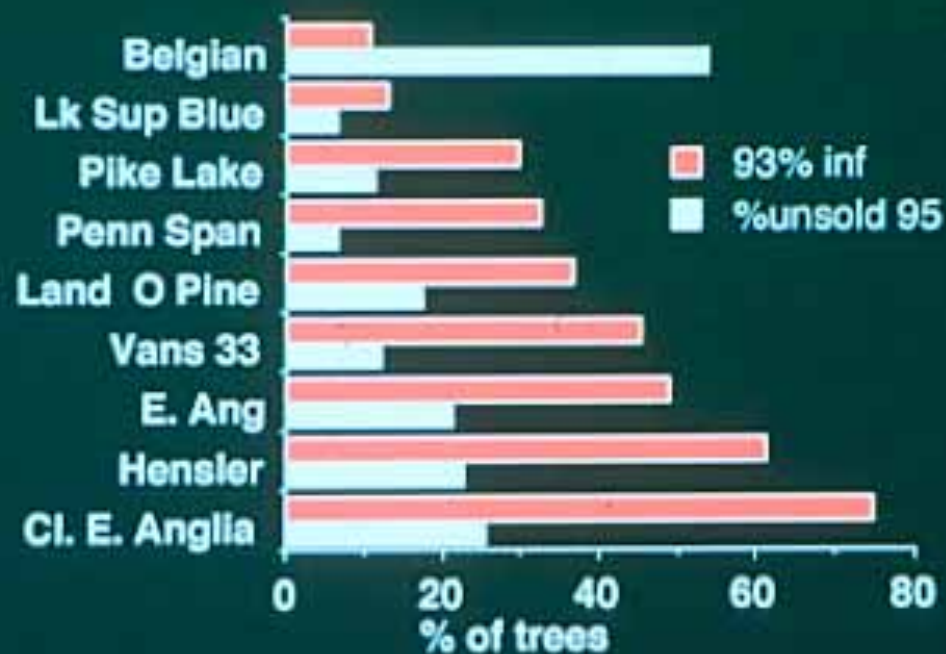


Zimmerman Pine Moth Caterpillar



Evaluation of Resistant Varieties

93 ZPM Infested and 95 Unsold



Management Strategy

ZPM Management Strategy for new fields

Year 1- 4 (keep them out)

**Scout and Spot Treat, or
Cover spray in April (100 gal / Acre)**

Year 5-9 (coast)

**No Sprays (penetration probs)
Cull Heavily Infested trees**

Dogwood Borer



Borer Injury



Pupal Skin of Dogwood Borer



Dogwood borers attack trees wrapped in plastic



Pheromone Traps



Clearwing Borers



Dogwood

Banded Ash

Rhododendron

Banded Ash Clearwing

- Dieback
- Still treatable



Banded Ash Clearwing Pupa



Banded Ash Clearwing Pupal Skin



Banded Ash Clearwing Hole



Banded Ash Clearwing Sawdust



Common Clear Wing Borers

<u>Common Name</u>	<u>Hosts attacked</u>	<u>Flight Period</u>
Banded Ash Clearwing	Ash	Late July-Sept
Dogwood borer	Dogwood, apple, pear	Late May
Lesser peach tree borer	Peach, cherry, plum,	May-July, July-Sept
Lilac borer	Ash, lilac, privet, fringe tree	May- July
Oak borer	Oak	May- June
Peach tree borer	Peach, Cherry	Mid-June-August
Rhododendron Borer	<i>Rhododendron</i>	May

Lilac Borer



Lilac Borer Damage



Peach Tree Borer Damage



Carpenter Worm



Carpenter Worm Gallery

